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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
SHINTARO HIKASA, ET AL.	: EXAMINER: ROLLAND, ALEX A
SERIAL NO: 10/576,722	:
FILED: APRIL 21, 2006	: GROUP ART UNIT: 1712
FOR: METHOD OF HYDRAULIC TRANSFER AND HYDRAULIC TRANSFER BASE FILM	:

APPEAL BRIEF

This is an appeal to the Board of Patent Appeals and Interferences (Board) under 35 U.S.C. § 134 from the April 14, 2011 rejections of Claims 8-22 of Application 10/576,722, filed April 21, 2006. A Notice of Appeal was timely filed on October 13, 2011 with three extensions of time. This Appeal Brief is timely filed on or before December 13, 2011, with no extension of time.

REAL PARTY IN INTEREST

The real party in interest in this appeal is KURARAY CO. LTD., having a place of business at 1621, Sakazu Kurashiki-shi, Okayama, 710-8622, JAPAN.

RELATED APPEALS AND INTERFERENCES

Appellant/Applicant, Appellant/Applicant's legal representatives, and Appellant/Applicant's assignees, are aware of no appeals, interferences, or judicial proceedings that are related to, directly affect or would be directly affected by, or have a bearing on the decision of the Board in this appeal.

STATUS OF THE CLAIMS

Claims 8-22 stand twice REJECTED under 35 U.S.C. § 103. The rejections are APPEALED.

Claims 8-11 and 13-22 stand twice REJECTED under 35 U.S.C. 103(a) as being obvious over Marui (U.S. 4,231,829) in view of Suzumura (U.S. 3,316,190). The rejection is APPEALED.

Claim 12 stands twice REJECTED under 35 U.S.C. 103(a) as being obvious over Marui and Suzumura in view of Smyser (U.S. 3,220,992). The rejection is APPEALED.

Claims 8-22 are APPEALED.

Claims 1-7 have been withdrawn from consideration by the Examiner.

The Claims Appendix to this Appeal Brief provides a clean copy of all pending claims.

STATUS OF AMENDMENTS

No amendment to Claims 1-22 have been submitted or entered after the Examiner's June 22, 2010, rejections thereof.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The claims are directed to a hydraulic transfer printing base film comprising 100 parts by weight of a polyvinyl alcohol polymer and from 0.05 to 5 parts by weight of a nonionic surfactant (Spec. p. 7, lines 9-10), wherein an aqueous solution at 20°C comprising 0.01% by weight of said nonionic surfactant has a surface tension of 40 mN/m or less (*Id.* lines 12-13), and wherein the base film exhibits an extension ratio of 1.6 or less when the base film is floated on an aqueous solution at 30°C comprising 0.05% by weight of the base film dissolved therein (*Id.* lines 14-16). When a transfer sheet is prepared by forming a print layer on the hydraulic transfer printing base film of the present invention and transfer printing is carried out using the transfer sheet, it is possible to inhibit extension of the sheet when it is swelled on the surface of water (*Id.* lines 16-21). As a result, it is possible to transfer high-definition print patterns to the surface of a non-flat article with irregularities (*Id.* lines 21-23).

GROUNDS OF REJECTION TO BE REVIEWED

A. The rejection of Claims 8-11 and 13-22 under 35 U.S.C. 103(a) as being obvious over Marui (U.S. 4,231,829) in view of Suzumura (U.S. 3,316,190).

B. The rejection of Claim 12 under 35 U.S.C. 103(a) as being obvious over Marui and Suzumura in view of Smyser (U.S. 3,220,992).

ARGUMENT

1. Introduction

The hydraulic transfer printing base film comprising a nonionic surfactant according to the present invention allows for the transfer of high-definition print patterns to the surface of an article having irregularities or a curved surface (*See* pg. 7, lines 16 to 23; pg. 9, lines 18-22). Specifically, it has been found that by using a specific nonionic surfactant, it is possible to inhibit a resulting transfer sheet from extending due to its swelling on the surface of the aqueous solution (*See* Examples 3, 4 and 5; pg. 50-56).

In contrast, when a nonionic surfactant which does not satisfy the requirement prescribed in Claim 8 is used, it becomes increasingly difficult to suppress the extension of a transfer sheet on the surface of the aqueous solution, resulting in a blurred print pattern and making it extremely difficult to transfer a clear, high definition pattern (*See* Comparative Example 5, pg. 57).

2. Erroneous rejection of Claims 8-11 and 13-22 under 35 U.S.C. 103(a) over Marui in view of Suzumura.

Claims 8-11 and 13-22 stand twice rejected under 35 U.S.C. 103(a) over Marui in view of Suzumura. This rejection should be reversed.

Claim 8 recites:

> A hydraulic transfer printing base film comprising 100 parts by weight of a polyvinyl alcohol polymer and from 0.05 to 5 parts by weight of a nonionic surfactant, wherein an aqueous solution at 20°C comprising 0.01% by weight of said nonionic surfactant has a surface tension of 40 mN/m or less, and wherein the base film exhibits an extension ratio of 1.6 or less when the base film is floated on an aqueous solution at 30°C comprising 0.05% by weight of the base film dissolved therein.

As apparent from Claim 8, the hydraulic transfer printing base film of the present invention comprises a specific nonionic surfactant. That is, when an aqueous solution at 20°C comprising 0.01% by weight of the said nonionic surfactant is prepared, a surface tension of the aqueous solution becomes 40 mN/m or less (hereinafter, "the surface tension of the aqueous solution at 20°C comprising 0.01% by weight of the nonionic surfactant" may be refered to as "surface-tension value"). The Appellants have discovered that when a nonionic surfactant having a surface-tension value of 40mN/m or less, it is possible to inhibit a resulting transfer sheet from extending due to its swelling on the surface of the aqueous solution (*See* Examples 3, 4 and 5; pg. 50-56). In turn, it becomes possible by using this hydraulic transfer printing base film to transfer high-definition print patterns to the surface of an article having irregularities or a curved surface (*See* Specification; pg. 9 [0013]).

i. The Examiner has failed to correctly recognize the description of Suzumura.

Neither Marui or Suzumura disclose or suggest the specific nonionic surfactant prescribed in Claim 8.

Marui discloses a specific process for transferring a printed pattern on a thin film of a polyvinyl alcohol resin to a surface of an object by pressing the object to the thin film floated on the surface of the water, wherein a surface active agent may be employed (*See* Abstract, Claim 1). However, Marui "is unclear as to the exact non-ioninc surface active agent used" and is completely silent on the nonionic surfactant having a surface-tension value of 40mN/m or less (*See* Official Action of April 14, 2011, pg.4, line 2).

Suzumura discloses cold water-soluble polyvinyl alcohol compositions and films (*See* Col. 1, lines 11-14) which may comprise from 0.01 to 20% by weight of anionic or nonionic surface active agent having a hydrophile-lipophile balance (HLB) in the range of 8 to 20, based on the weight of polyvinyl alcohol (*See* Col. 1, lines 29-32 and 51-67). However,

parallel to Marui, Suzumura is also completely silent on the nonionic surfactant having a surface-tension value of 40mN/m or less.

Nonetheless, the Examiner appears to take the view that simply because Suzumura discloses polyoxyethylene type nonionic surface active agents such as ethylene oxide adducts of lauryl alcohol (*i.e.* polyoxyethylene lauryl ether), Suzumura "inherently" discloses the specific nonionic surfactant prescribed in Claim 8.

However, even if Suzumura discloses polyoxyethylene lauryl ether, it can not be said that Suzumura discloses polyoxyethylene lauryl ether having a surface-tension value of 40mN/m or less because polyoxyethylene lauryl ether encompasses various species of polyoxyethylene lauryl ethers which differ each other in their chemical formulae.

As a nonionic surface active agent having a hydrophile-lipophile balance (HLB) in the range of 8 to 20, Suzumura discloses that polyoxyethylene type nonionic surface active agents may be used, and these compounds include the ethylene oxide adducts of fatty acids, fatty alcohols and alkylphenols, and may be represented by the formula; $RO(CH_2CH_2O)_nH$, wherein R is selected from the group consisting of alkyl radicals containing from about 8 to 20 carbon atoms (for the ethylene oxide adducts of fatty alcohols), alkanoyl radicals containing from about 8 to 20 carbon atoms (for the ethylene oxide adducts of fatty acids) and alkylphenyl radicals in which the alkyl group contains from about 6 to 12 carbon atoms (for the ethylene oxide adducts of alkylphenols), and the value of "n" is such that the compound contains at least about 40% by weight of ethylene oxide (*See* Col. 2, lines 4-16). Suzumura exemplifies the ethylene oxide adducts of lauryl alcohol, stearyl alcohol, lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, p-octylphenol and p-nonylphenol as a typical nonionic surface active agents (*See* Col. 2, lines 20-24).

Appellants note that "HLB" (a hydrophile-lipophile balance) shows the proportion of hydropilic component such as ethylene oxide component in a surfactant molecule. "HLB"

can be 0 at minimum and 20 at maximum. As described by Suzumura (*See* Col. 2, lines 29-30), the weight percentage of hydrophilic component, such as ethylene oxide component in a surfactant can be approximated by multiplying the HLB value by 5. The ethylene oxide percentage is approximated to be 40 wt% when HLB value is 8, and 100 wt% when HLB value is 20. Accordingly, the surface active agent of Suzumura includes various species of surface active agents with 40-100 wt% ethylene oxide.

For example, lauryl alcohol has a molecular weight of 186 and ethylene oxide unit has a formula weight of 44. Accordingly, in the polyoxyethylene lauryl ether having HLB value of 8, the number of ethylene oxide units ("n" of the above mentioned formula) is approximated to be 2.8 (= 186*40/(100-40)/44). In the polyoxyethylene lauryl ether having HLB value of 20, the number of ethylene oxide units becomes infinite. Thus, polyoxyethylene lauryl ether disclosed in Suzumura encompasses various species of polyoxyethylene lauryl ethers which differ each other in their chemical formulae (namely, in their proportion of hydrophilic component).

The above-mentioned proportion of hydrophilic component directly influences the surface-tension value of the nonionic surfactant. Thus, there is simply no disclosure in Suzumura for a surfactant having a surface-tension value of 40mN/m or less.

It is by now well settled that the burden of establishing a *prima facie* case of inherency resides with the Patent and Trademark Office. *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984), quoting *In re Warner*, 379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967), "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. **The mere fact that a certain thing may result from a given set of circumstances is not sufficient [to establish**

inherency].'" In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). Thus, inherency may not be established by probabilities or possibilities. Something that is inherent must inevitably be the result each and every time.

The Examiner argues that "the surface tension of the surfactant under any conditions are found to be properties of the claimed composition. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established" (*See* Official Action, pg.4, lines 11-16). However, the surface-tension value is a property peculiar to each nonionic surfactant but not a property of the composition. And as neither Marui or Suzumura disclose or suggest the specific nonionic surfactant having a surface-tension value of 40mN/m or less, it can not be said that the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical prosesses.

Thus, it is clear that the Examiner has failed to correctly recognize the description of Suzumura, which results in inappropriate adoption of inherency, and for this reason alone the rejection should be REVERSED.

ii. The data provided in the specification is also sufficient to rebut *prima facie* obviousness.

Even if a *prima facie* case of obviousness can be established, which Appellants maintain it cannot, Appellants demonstration in Examples 3-5 is sufficient to rebut the same. "[E]vidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness. "Evidence that a compound is unexpectedly superior in one of a spectrum of common

properties . . . can be enough to rebut a *prima facie* case of obviousness." No set number of examples of superiority is required. *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987)" The data in the specification clearly illustrates that by using a nonionic surfactant having a surface-tension value of 40mN/m or less, it is possible to inhibit the transfer sheet from extending due to its swelling on the surface of the aqueous solution (*See* Examples 3, 4 and 5; pg. 50-56), which is enough to rebut a *prima facie* case of obviousness.

Specifically, in Examples 3 to 5, the nonionic surfactants have surface-tension values of 40mN/m or less (27.8 and 31.1mN/m). The extension ratios after 5 times that needed from the time when the hydraulic transfer printing base film was floated on the surface of the aqueous solution to the time when the surface of the film became smooth (*See Specification;* pg. 48, line 24 to pg. 49, line 2) are 1.47, 1.38, and 1.50, respectively.

In contrast, when the surface tension value exceeds 40 mN/m, it becomes increasingly difficult to suppress the extension of a transfer sheet on the surface of the aqueous solution, resulting in blur of the print pattern and making it extremely difficult to transfer a clear, high definition pattern (*See* Comparative Example 5, pg. 57).

Thus, Examples 3-5 clearly illustrate that the hydraulic transfer printing base film according to the present invention make it possible to inhibit extension of a resulting transfer sheet when floating the transfer sheet on the surface of water to swell it. Appellants submit that, even if a *prima facie* case of obviousness can be established, these results demonstrated in Examples 3-5 are clearly sufficient to rebut the same.

A Declaration was submitted on December 22, 2010 stating that Marui does not disclose the specific nonionic surfactant nor the surface tension of the nonionic surfactant, and thus a person skilled in the art cannot understand the relationship between the extension of the resulting transfer sheet and the kind of the nonionic surfactant from Marui, that Suzumura only discloses a cold water-soluble PVA film that is non-sticky at high humidity

and Suzumura does not disclose the hydraulic transfer printing base film nor resulting transfer sheet, and thus a person skilled in the art would not expect the result concerning the extension of the resulting transfer sheet from Suzumura, and the results demonstrated in Examples 3-5 are unexpected in view of Marui and Suzumura (*See* 37 C.F.R. § 1.132 Declaration Submitted herewith).

Appellants note that the Examiner has failed to consider the rebuttal evidence contained in the specification (Official Action of April 14, 2011, pg. 7, para. 10). Specifically, the Examiner states that "no evidence has been provided to substantiate such a claim, particularly evidence compared to the closest prior art." However, Appellants disagree as the above arguments concerning Examples 3-5 were explicitly identified in both the Amendment filed March 18, 2010 and the Request for Reconsideration filed December 22, 2010. The Examiner is required to consider arguments to rebut *prima facie* obviousness. Specifically, MPEP 2145 states "If a *prima facie* case of obviousness is established, **the burden shifts to the applicant to come forward with arguments and/or evidence to rebut the *prima facie* case. Rebuttal evidence and arguments can be presented in the specification, ...Office personnel should consider all rebuttal arguments and evidence presented by Applicants.**" Appellants note that the Office has failed, in the Office Actions issued June 22, 2010, and April 14, 2011 to consider the rebuttal arguments and evidence presented by Appellants in the Responses filed March 18, 2010 and December 22, 2010. On this basis alone the rejection cannot be sustained and should be REVERSED.

3. Erroneous rejection of Claim 12 under 35 U.S.C. 103(a) over Marui and Suzumura in view of Smyser.

Claim 12 stands twice rejected under 35 U.S.C. 103(a) over Marui and Suzumura in view of Smyser. This rejection should be reversed.

Claim 12 is dependent on claim 8 discussed above, and Smyser fails to cure the deficiencies of Marui and Suzumura. Specifically, Smyser fails to disclose or suggest the specific nonionic surfactant claimed wherein an aqueous solution at 20°C, comprising 0.01% by weight of the nonionic surfactant has a surface tension of 40mN/m or less. Since the Examiner has failed to establish the presence of this limitation either explicitly or inherently in Marui, Suzamura or Smyser, this rejection should be REVERSED.

4. Conclusion

The evidence of record does not support the Examiner's final rejections of Appellant's claims under 35 U.S.C. § 103. Accordingly, the above rejections should be REVERSED.

RELIEF REQUESTED

For the reasons stated herein:

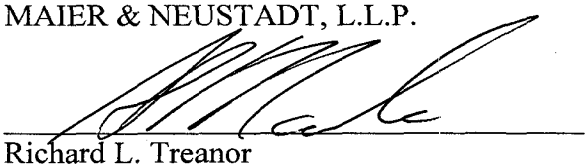
A. The rejection of claims 8-11 and 13-22 under 35 U.S.C. 103(a) over Marui in view of Suzumura should be REVERSED.

B. The rejection of claim 12 under 35 U.S.C. 103(a) over Marui and Suzumura in view of Smyser should be REVERSED.

Appellants respectfully requests the Board to REVERSE all the appealed rejections.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



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CLAIMS APPENDIX

Claim 1 (Withdrawn): A method for hydraulic transfer printing, comprising floating a transfer sheet comprising a polyvinyl alcohol polymer film and a print layer formed thereon on a surface of an aqueous solution while directing the print layer upward, and pressing an article against the surface of the aqueous solution to transfer the print layer to the article, wherein the aqueous solution has a surface tension of 45 mN/m or less and the transfer sheet exhibits an extension ratio of 1.30 or less during the transfer.

Claim 2 (Withdrawn): The method for hydraulic transfer printing according to claim 1, wherein the aqueous solution has a surface tension of 15 mN/m or more.

Claim 3 (Withdrawn): The method for hydraulic transfer printing according to claim 1, wherein the transfer sheet exhibits an extension ratio of 1.20 or less during the transfer.

Claim 4 (Withdrawn): The method for hydraulic transfer printing according to claim 1, wherein the aqueous solution comprises from 0.001 to 3% by weight of a surfactant.

Claim 5 (Withdrawn): The method for hydraulic transfer printing according to claim 1, wherein the aqueous solution comprises a solid concentration of from 0.001 to 5% by weight.

Claim 6 (Withdrawn): The method for hydraulic transfer printing according to claim 1, further comprising applying an ink activating solvent before the floating of the transfer sheet on the surface of the aqueous solution.

Claim 7 (Withdrawn): The method for hydraulic transfer printing according to claim 1, wherein a time taken from the floating of the transfer sheet on the surface of the aqueous

solution to the pressing of the article against the surface of the aqueous solution is from 40 to 240 seconds.

Claim 8 (Rejected): A hydraulic transfer printing base film comprising 100 parts by weight of a polyvinyl alcohol polymer and from 0.05 to 5 parts by weight of a nonionic surfactant, wherein an aqueous solution at 20°C comprising 0.01% by weight of said nonionic surfactant has a surface tension of 40 mN/m or less, and wherein the base film exhibits an extension ratio of 1.6 or less when the base film is floated on an aqueous solution at 30°C comprising 0.05% by weight of the base film dissolved therein.

Claim 9 (Rejected): The hydraulic transfer printing base film according to claim 8, further comprising a plasticizer in an amount of from 0.5 to 10 parts by weight based on 100 parts by weight of the polyvinyl alcohol polymer.

Claim 10 (Rejected): The hydraulic transfer printing base film according to claim 8, further comprising starch in an amount of from 0.1 to 15 parts by weight based on 100 parts by weight of the polyvinyl alcohol polymer.

Claim 11 (Rejected): The hydraulic transfer printing base film according to claim 8, further comprising boric acid or a derivative thereof in an amount of from 0.1 to 5 parts by weight based on 100 parts by weight of the polyvinyl alcohol polymer.

Claim 12 (Rejected): The hydraulic transfer printing base film according to claim 8, comprising a water content of from 1.5 to 4% by weight.

Claim 13 (Rejected): The hydraulic transfer printing base film according to claim 8, wherein a retardation thereof is 40 nm or less.

Claim 14 (Rejected): The hydraulic transfer printing base film according to claim 8, wherein a thickness thereof is from 20 to 50 μm.

Claim 15 (Rejected): The hydraulic transfer printing base film according to claim 8, wherein a transverse shrinkage thereof is from 0.01 to 1.5% when a tension of 8.0 kg/m is applied in the longitudinal direction of the film at 50°C for one minute.

Claim 16 (Rejected): The hydraulic transfer printing base film according to claim 8, wherein a time (T1), needed from a time when the base film is floated on the surface of an aqueous solution at 30°C including 0.05% by weight of the base film dissolved therein to a time when the film shrinks, is from 5 to 20 seconds.

Claim 17 (Rejected): The hydraulic transfer printing base film according to claim 8, wherein a time (T2), needed until the base film dissolves completely in water at 30°C, is from 15 to 40 seconds.

Claim 18 (Rejected): The hydraulic transfer printing base film according to claim 8, wherein a ratio (T1/T2) of a time (T1), needed from a time when the base film is floated on the surface of an aqueous solution at 30°C including 0.05% by weight of the base film dissolved therein to a time when the film shrinks, to a time (T2), needed until the base film dissolves completely in water at 30°C, is from 0.3 to 0.8.

Claim 19 (Rejected): A transfer sheet comprising the hydraulic transfer printing base film according to claim 8 and a print layer formed thereon.

Claim 20 (Rejected): A transfer sheet comprising the hydraulic transfer printing base film of claim 9 and a print layer formed thereon.

Claim 21 (Rejected): A transfer sheet comprising the hydraulic transfer printing base film of claim 8, wherein said nonionic surfactant is at least one selected from the group consisting of a polyoxyethylene alkyl ether, polyoxyethylene alkyl phenyl ether, polyoxyethylene alkyl ester, polyoxyethylene alkylamine, polyoxyethylene alkyl amide, alkanol amide and polyoxyalkylene allyl phenyl ether.

Claim 22 (Rejected): A transfer sheet comprising the hydraulic transfer printing base film of claim 8, wherein said nonionic surfactant is at least one polyoxyethylene alkyl ether selected from the group consisting of polyoxyethylene lauryl ether and polyoxyethylene oleyl ether.

EVIDENCE APPENDIX

Affidavits and Declarations

(1) Declaration Under 37 CFR 1.132 of Takanori Isozaki, dated December 13, 2010 and filed with a Request for Reconsideration on December 22, 2010 (attached).

No other evidence in the form of an affidavit or declaration is relied upon in support of the findings and arguments in this appeal.

RELATED PROCEEDINGS APPENDIX

Appellant/Applicant, Appellant/Applicant's legal representatives, and Appellant/Applicant's assignees, are aware of no appeals, interferences, or judicial proceedings that are related to, directly affect or would be directly affected by, or have a bearing on the decision of the Board in this appeal.